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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)


Applicant's or agent's file reference 2002P15665WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP02/11867	International filing date (day/month/year) 23.10.2002	Priority date (day/month/year) 26.09.2002
International Patent Classification (IPC) or both national classification and IPC G01H1/00		
Applicant SIEMENS AKTIENGESellschaft		

- This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 7 sheets, including this cover sheet.
 - ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 27.05.2003	Date of completion of this report 11.12.2003
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Strohmayer, B Telephone No. +49 89 2399-2669



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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-8 as originally filed

Claims, Numbers

1-12 as originally filed

Drawings, Sheets

1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
- (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*
6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:
- ☐ restricted the claims.
 - ☒ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
 - ☒ not complied with for the following reasons:
- see separate sheet**
4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:
- ☒ all parts.
 - ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2,3,5,6
	No: Claims	1,4,7-12
Inventive step (IS)	Yes: Claims	
	No: Claims	2,3,5,6
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations

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see separate sheet

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X1=US3139748

X2=US4148271

X3=GB2250785

A4=Fritsch et al.: "A low-frequency micromechanical resonant vibration sensor for ..."

X10=GB1417108

X11=EP538580

X12=US6059500

X13=US5014544

X14=GB2194062

X15=US5534289

X16=GB1313058

X17=US2002000128

Section IV

This International Examining Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-6 (main invention)

1.1. Claims: 1,2,4,5

a plate capable of vibrating within hearing frequency range, said vibration frequency being characteristic for said specific failure.

problem: alternative means for acoustically amplifying the sound generated by the bearing.

1.2. Claims: 3,6

a number of devices are provided and assigned to a specific failure.

problem: monitoring a plurality of different types of failures.

2. Claims: 7-12

an optical signal is produced

problem: alternative means for signalling failure of a technical installation.

Please note that all inventions mentioned under item 1, although not necessarily linked

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by a common inventive concept, could be examined without effort justifying an additional fee.

The application lacks unity of invention within the meaning of Rule 13 PCT for the following reasons:

The subject matter of independent claims 1 and 4 is anticipated by document X1 (see section V below).

The novel features of the remaining dependent and independent claims with respect to X1 and thus their special technical features within the meaning of Rule 13.2 PCT and the associated problems are indicated above. As is immediately apparent, the special technical features of said groups of claims do not correspond to each other within the meaning of Rule 13.2 and solve different problems. Therefore the application lacks unity of invention.

Section V

The claims of both inventions are rendered unclear by the fact, that two embodiments of the description, namely the flux sensitive coating and the temperature sensitive coating on page 6 do not lie within the scope of any claim of any invention, since said coating are not "mechanically activated" as required by all independent claims.

first group of inventions:

1. The subject matters of claims 1 and 4 are anticipated by each of the following documents:

X1: Sp.1,Z.28-53, compare in particular col.1,I.68-70 "some bearing testers employ resonance chambers and large housings for amplifying the sound generated" with application, page 5,I.24,25 "designing the casing in a such a way that faulty bearings result in resonance effects"

X2: abstract, col.2,I.8-50 and Figures

X3: abstract and Fig.1.

2. The subject matters of dependent claims 3 and 6 are obvious from X2, since it is

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obvious to monitor all bearings in a vehicle (col.1,l.13-15 and col.2,l.48-50). They are obvious from X3 for similar reasons.

3. The subject matters of dependent claims 2 and 5 are obvious from X1, since it is obvious that the walls of the "resonance chambers" in X1 are formed by plates (X1, col.1,l.68-70).

second invention:

1. The subject matters of independent claims 7 (method) and 10 (apparatus) are anticipated by each of the following documents:

X10: p.1,l.45-57; Figure 3; p.1,l.97-p.2,l.12; p.2,l.27-33, 60, 62

X11: abstract; col.1,l.1-4, 31-46; col.2,l.5-8

X12: title and abstract; col.4,l.37-col.5,l.14

X13: Fig.2; col.3,l.1-39; col.,l.58-col.2,l.4

X14: abstract; p.1,l.59-66, 111-113; p.2,l.70-81

X15: abstract; col.4,l.33-37

X16: p.1,l.15-p.2,l.45 and p.3,l.1-9, compare in particular p.1,l.71 ("turbines") and current application, p.1,l.10 ("turbines"); p.4,l.63-p.4,l.2 ("Where an electrical indication is not needed but only a visual observation is desired coating 12 may be eliminated"); p.4,l.100,101

X17: abstract; paragraphs 2-6, 28 and 38

2. The subject matter of dependent claims 8,9 and 11,12 are likewise not new:

8,11: X10, X11, X12, X14, X15, X16, X17

9,12: disclosed in X11, obvious from X10, X12-X17